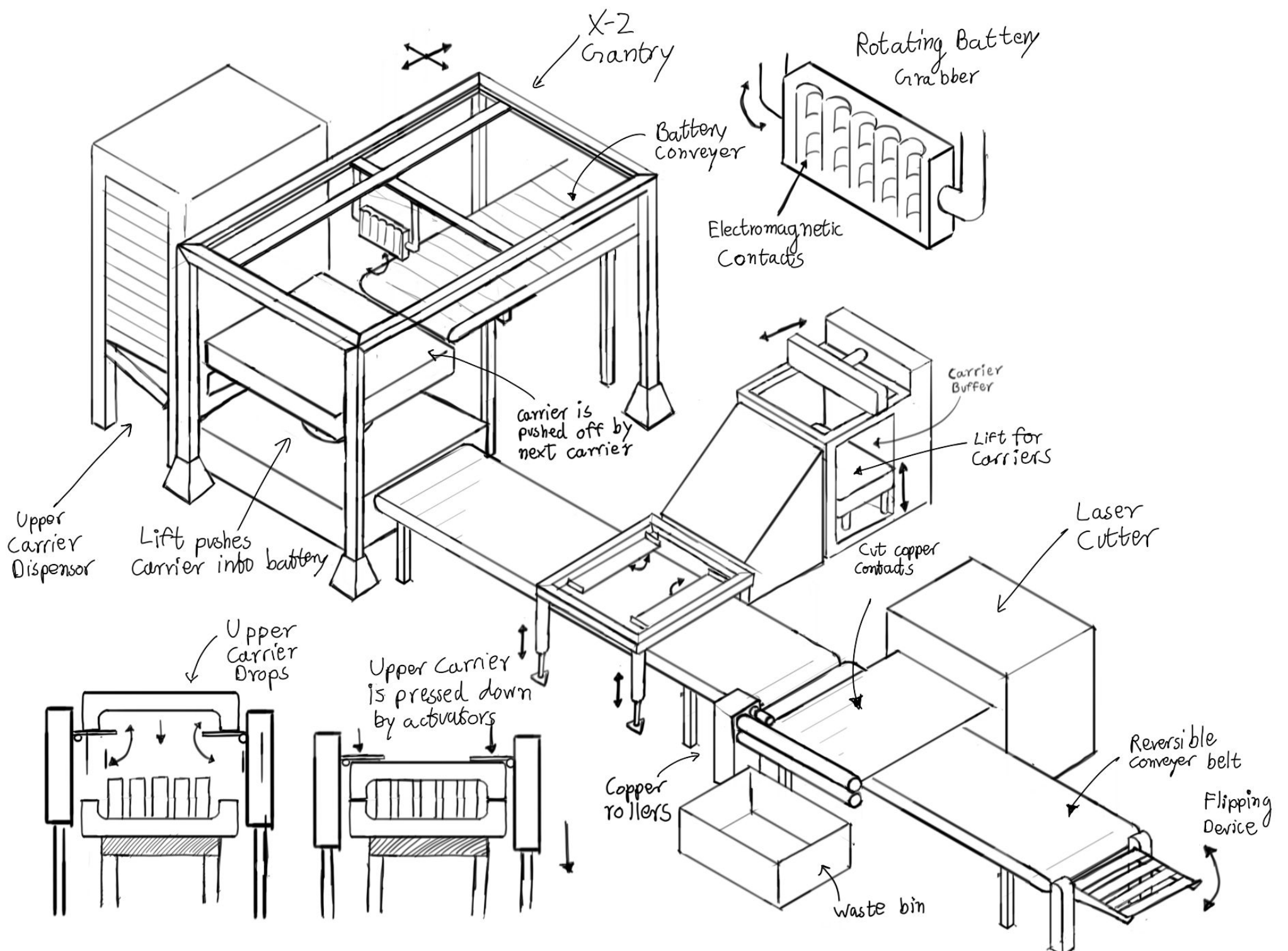
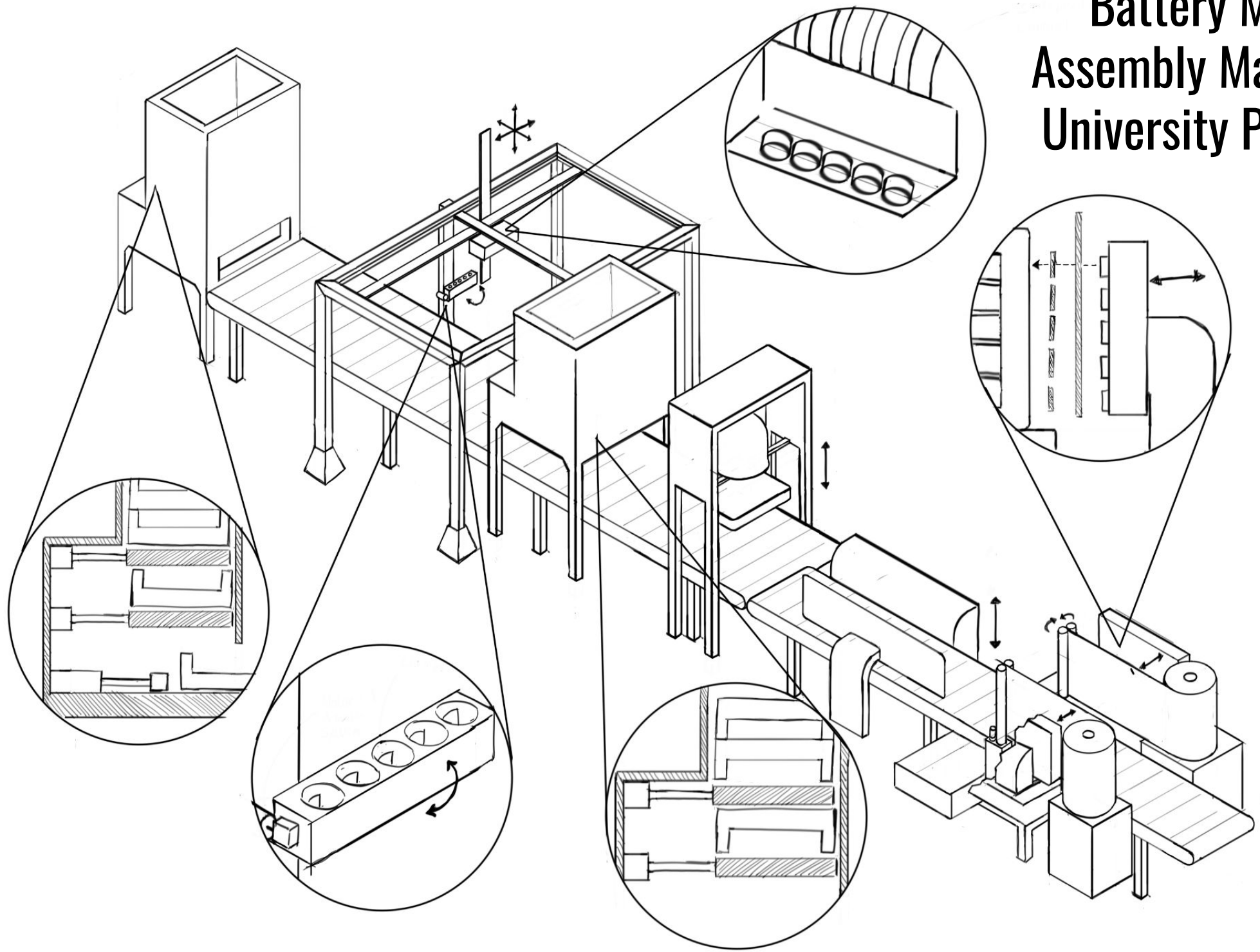

Rana Singh

PORTFOLIO

Mechanical Design

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Battery Module Assembly Machine University Project



Deweeding Tool University Project

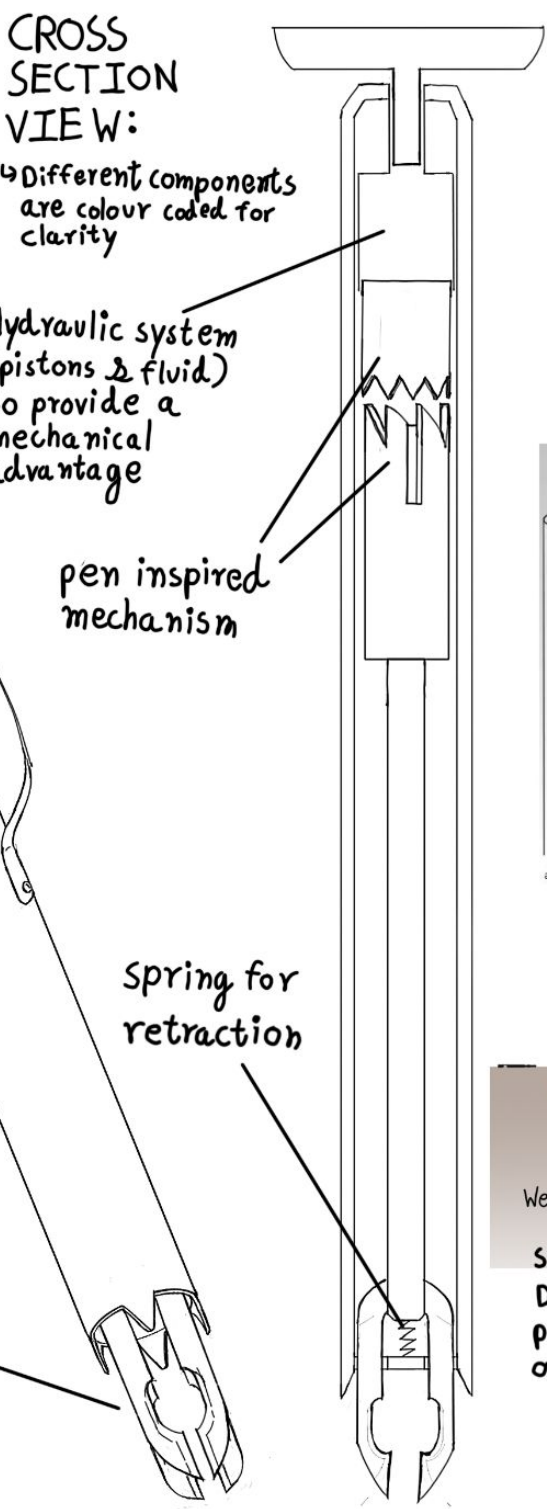
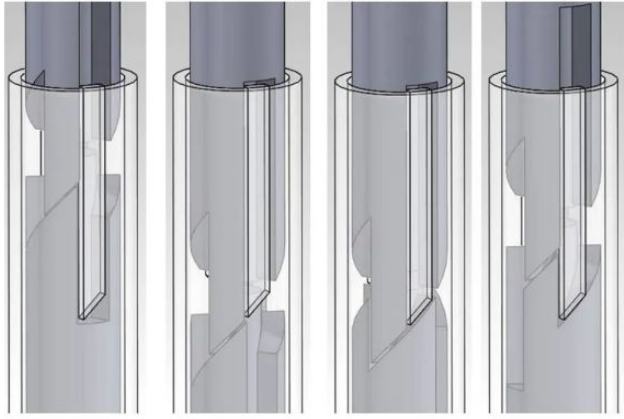
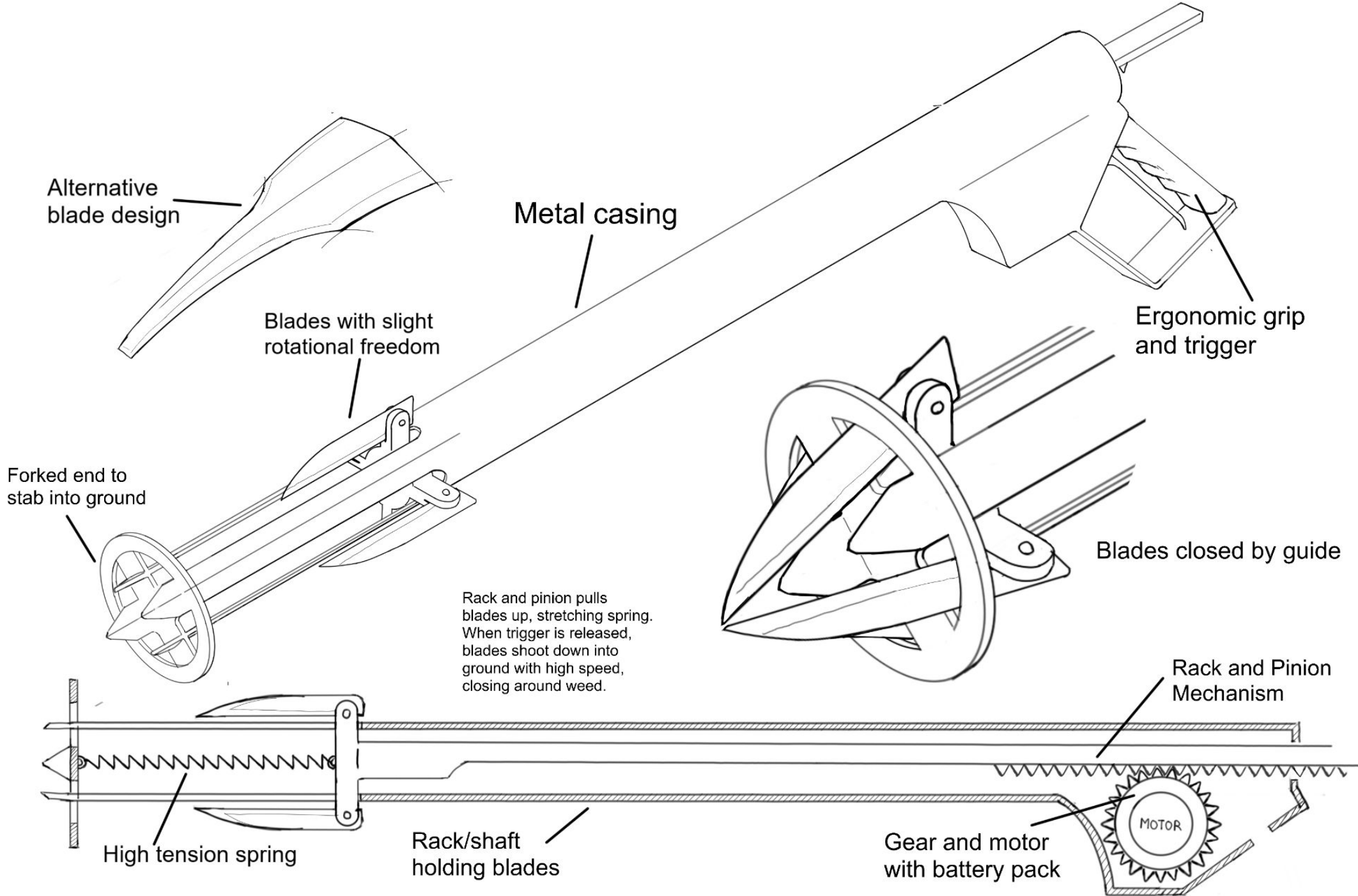
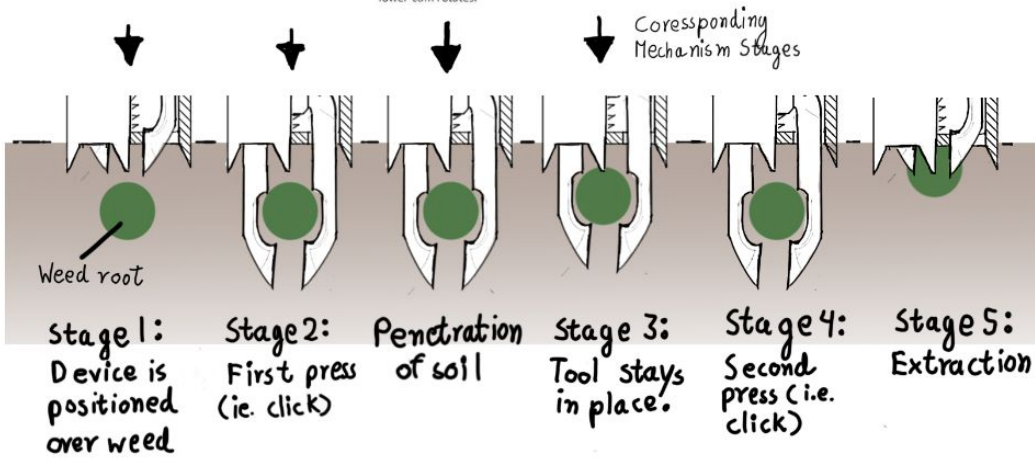


Figure 1: The 4 Stages of Mechanism Motion



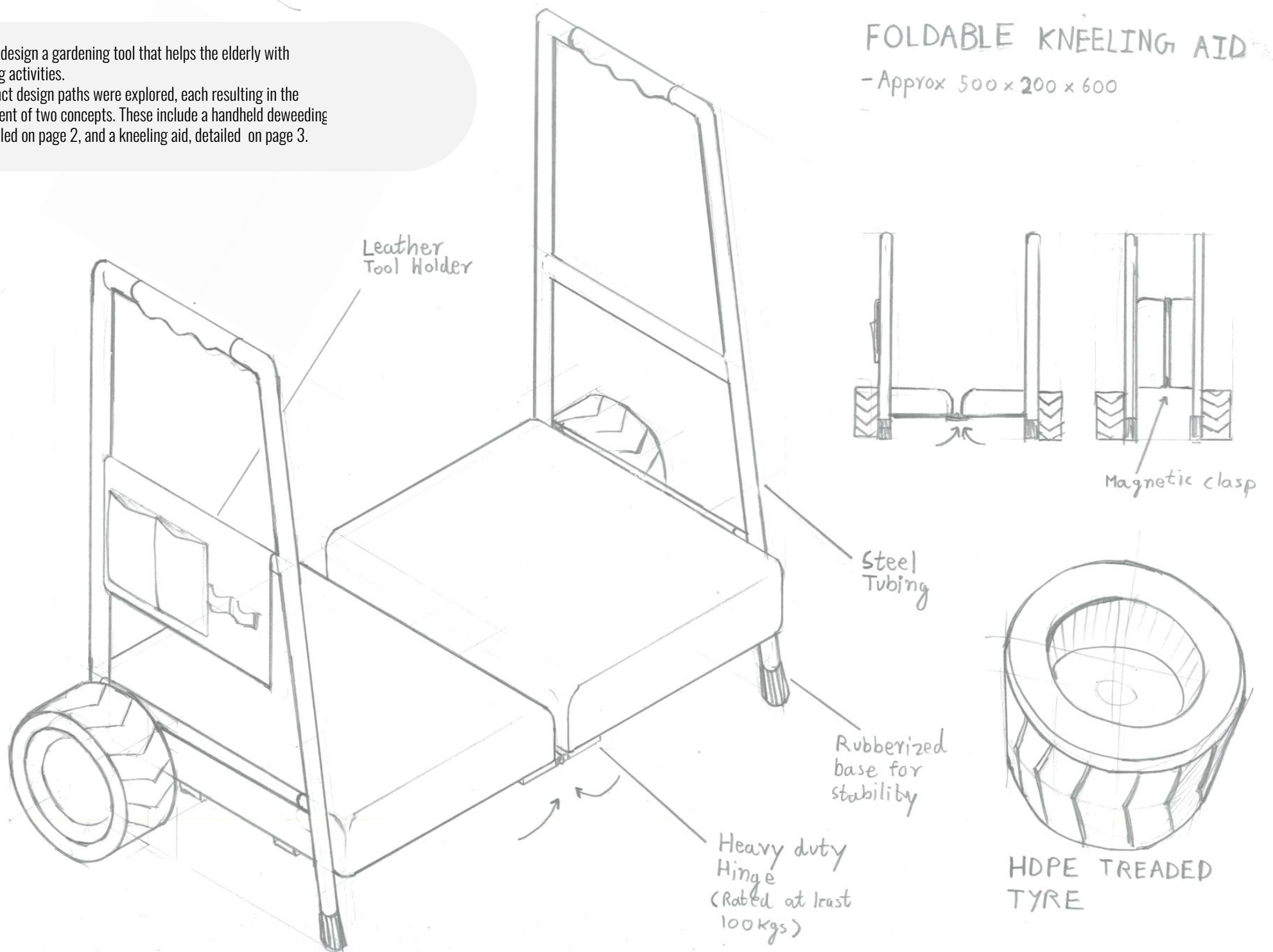
The mechanism for this design is inspired by the mechanism of a ball point pen which cyclically clicks in and out of the barrel. With repurposing and modification this can be applied to weed extraction.



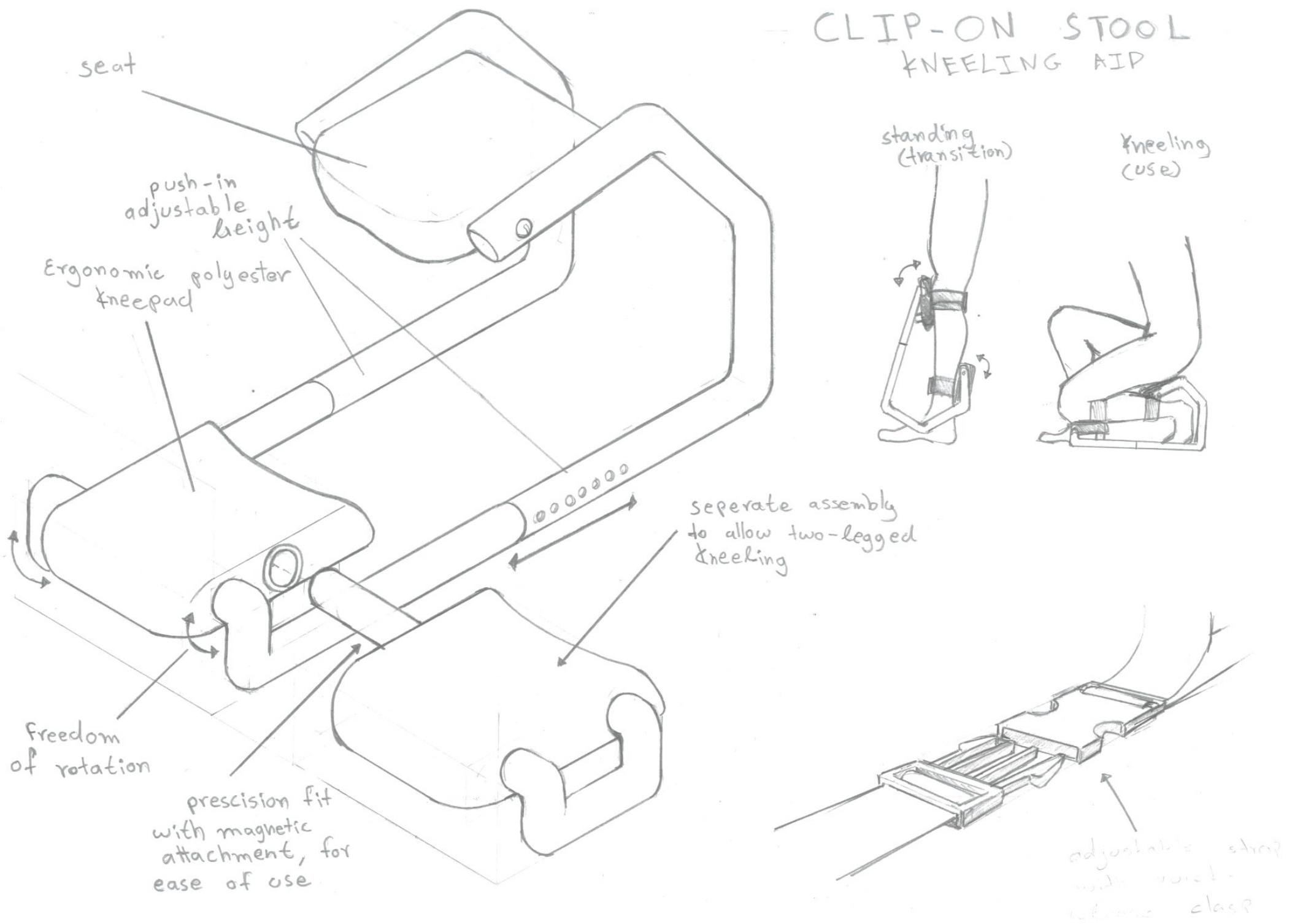
Brief: To design a gardening tool that helps the elderly with weeding activities.
Two distinct design paths were explored, each resulting in the development of two concepts. These include a handheld weeding tool, detailed on page 2, and a kneeling aid, detailed on page 3.

FOLDABLE KNEELING AID

- Approx 500 x 200 x 600

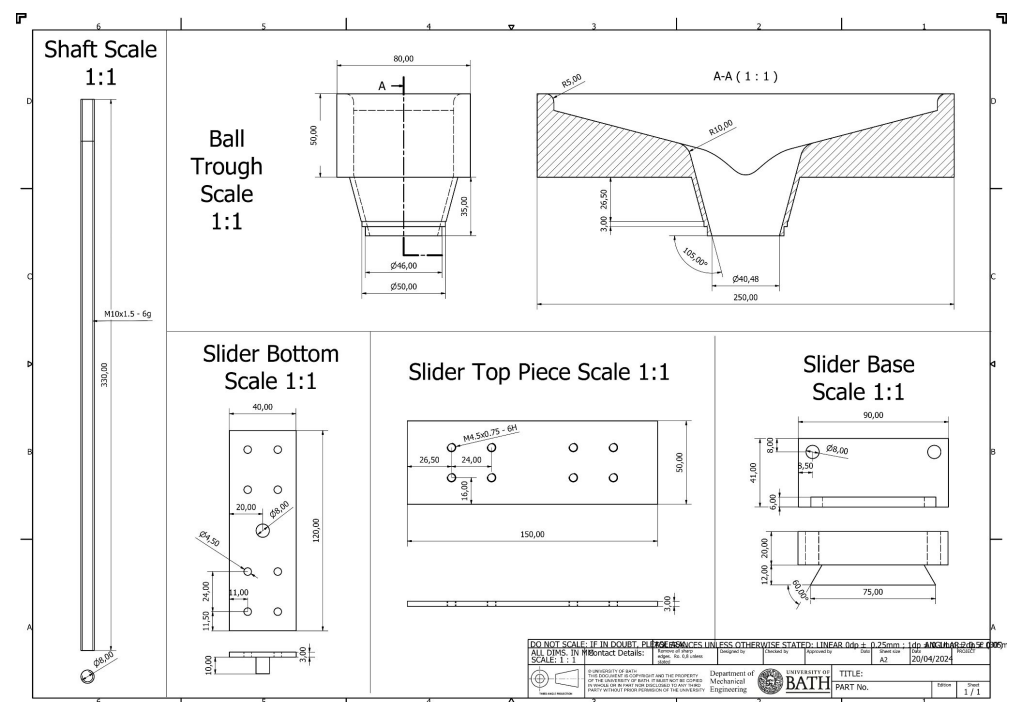
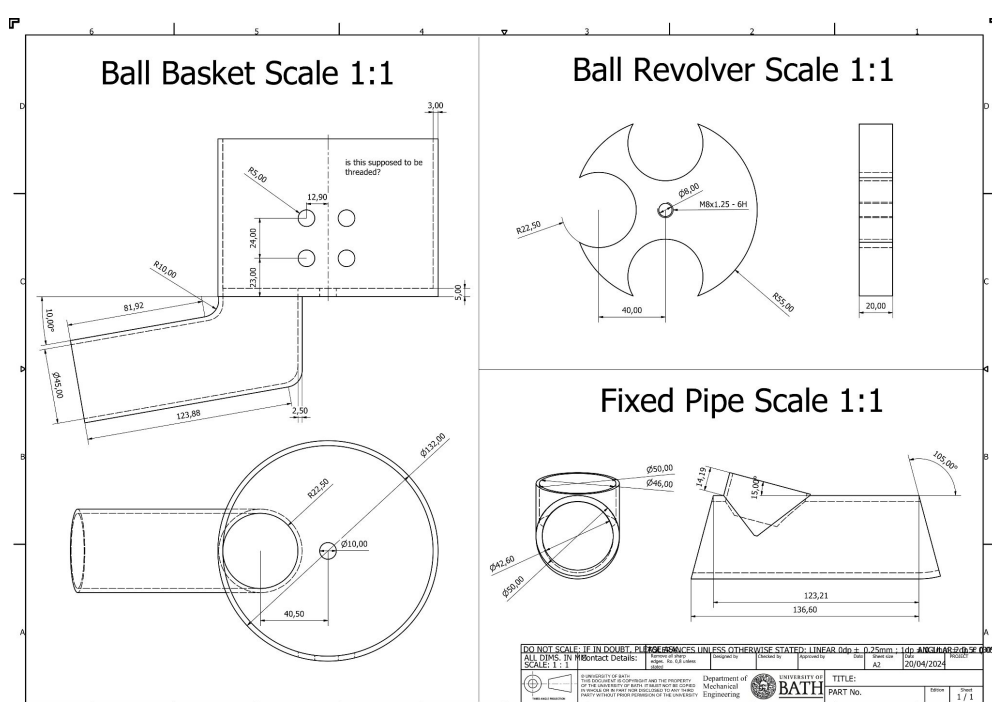
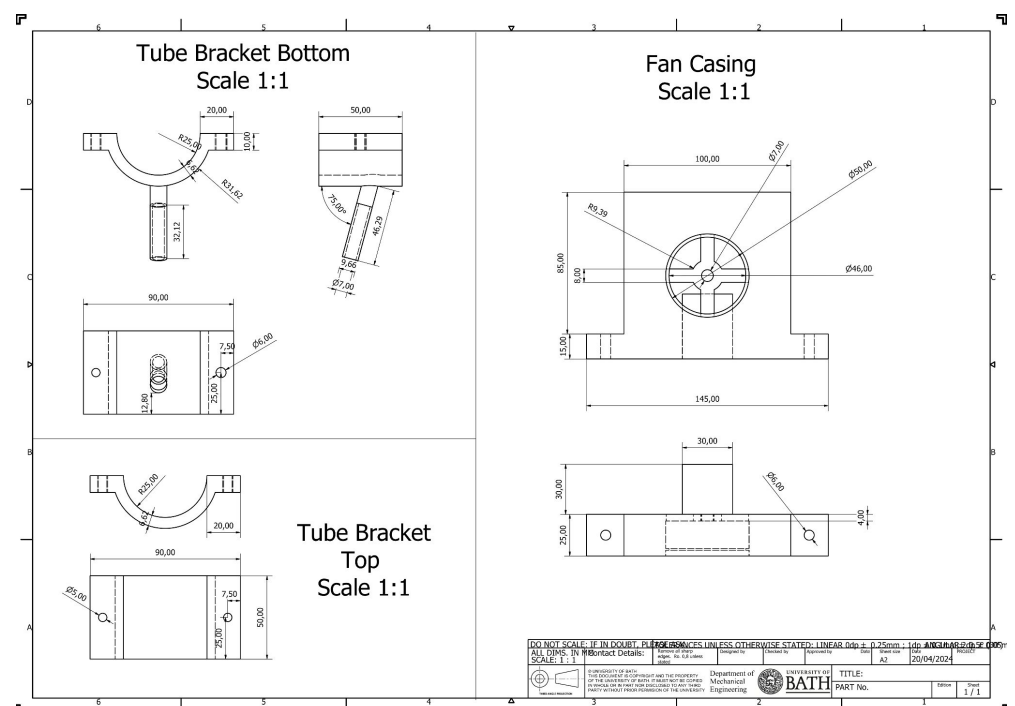
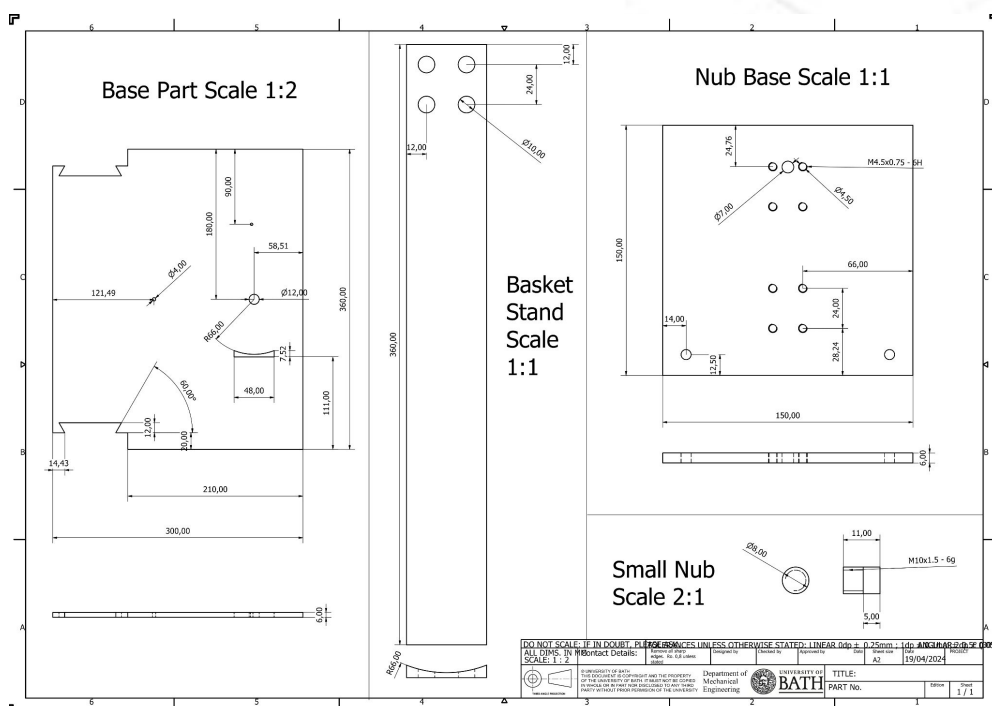
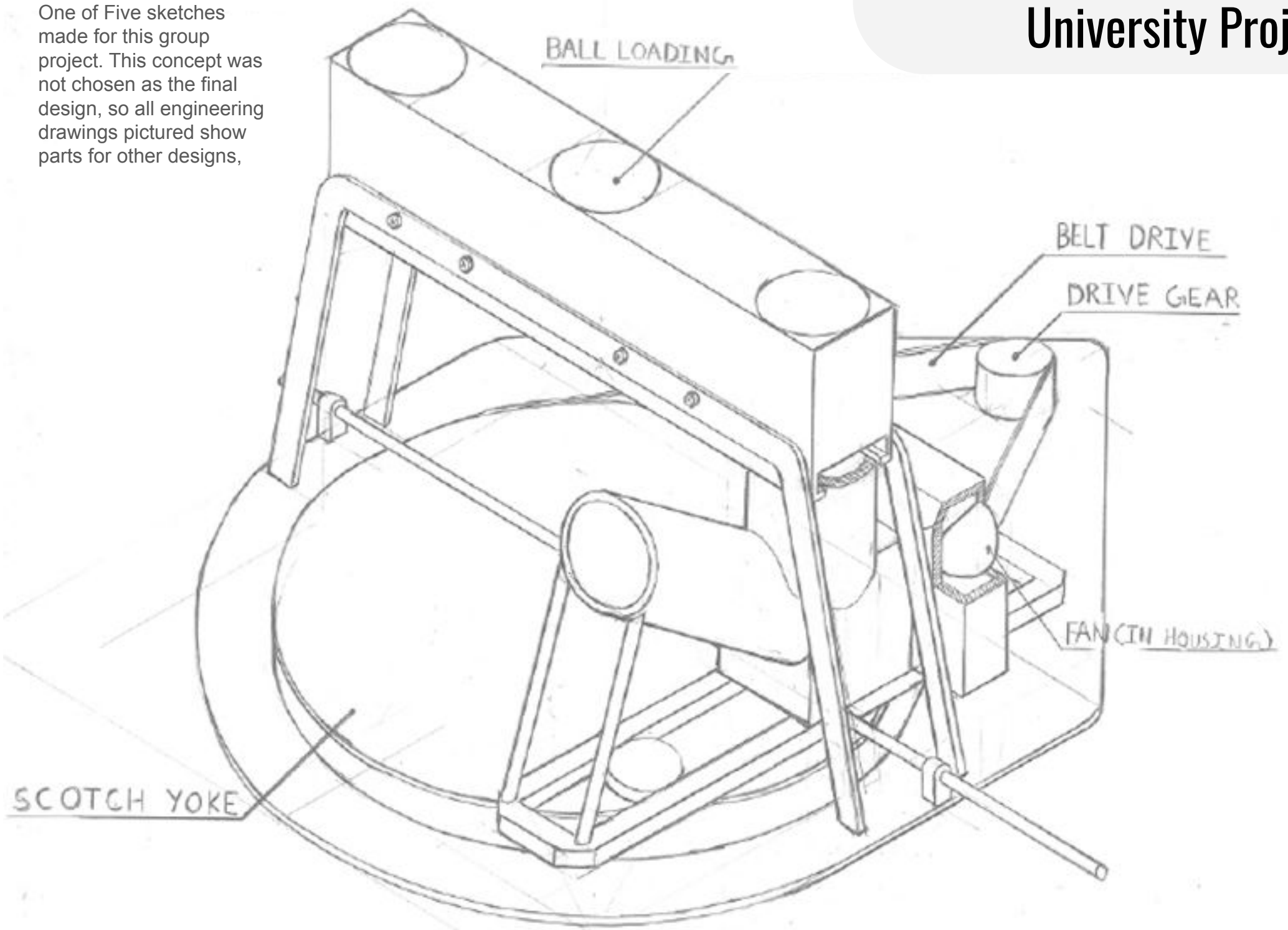


CLIP-ON STOOL KNEELING AID



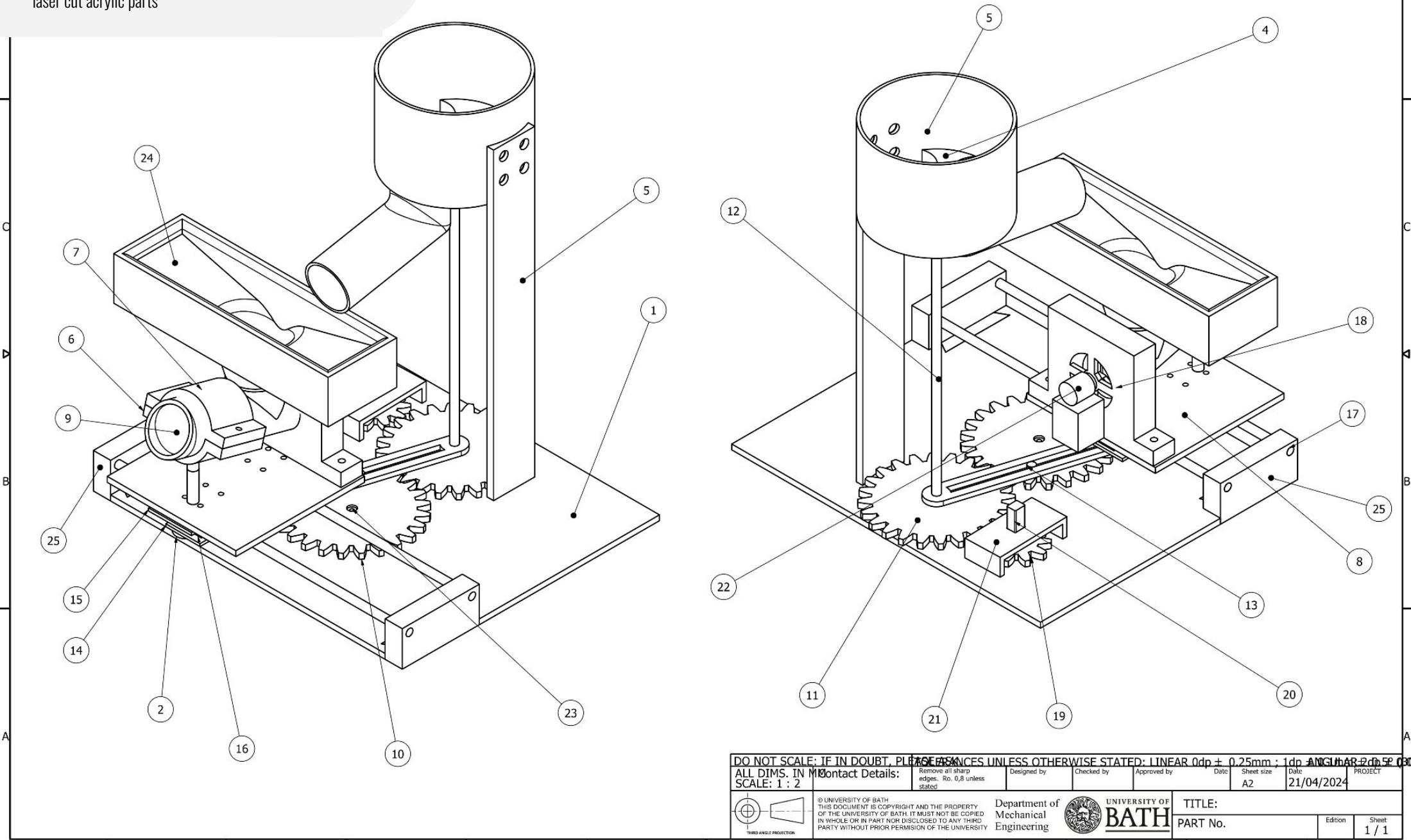
Ping Pong Ball Launcher University Project

Initial Concept sketch:
One of Five sketches made for this group project. This concept was not chosen as the final design, so all engineering drawings pictured show parts for other designs,



Brief: To design a 3 stage Ping pong ball launcher.
A design concept is featured on page 5, whilst the latter half of page 5 and page 6 show the final chosen design with part and assembly drawings of the 3D printed and laser cut acrylic parts

Final Assembly Drawing Scale 1:2

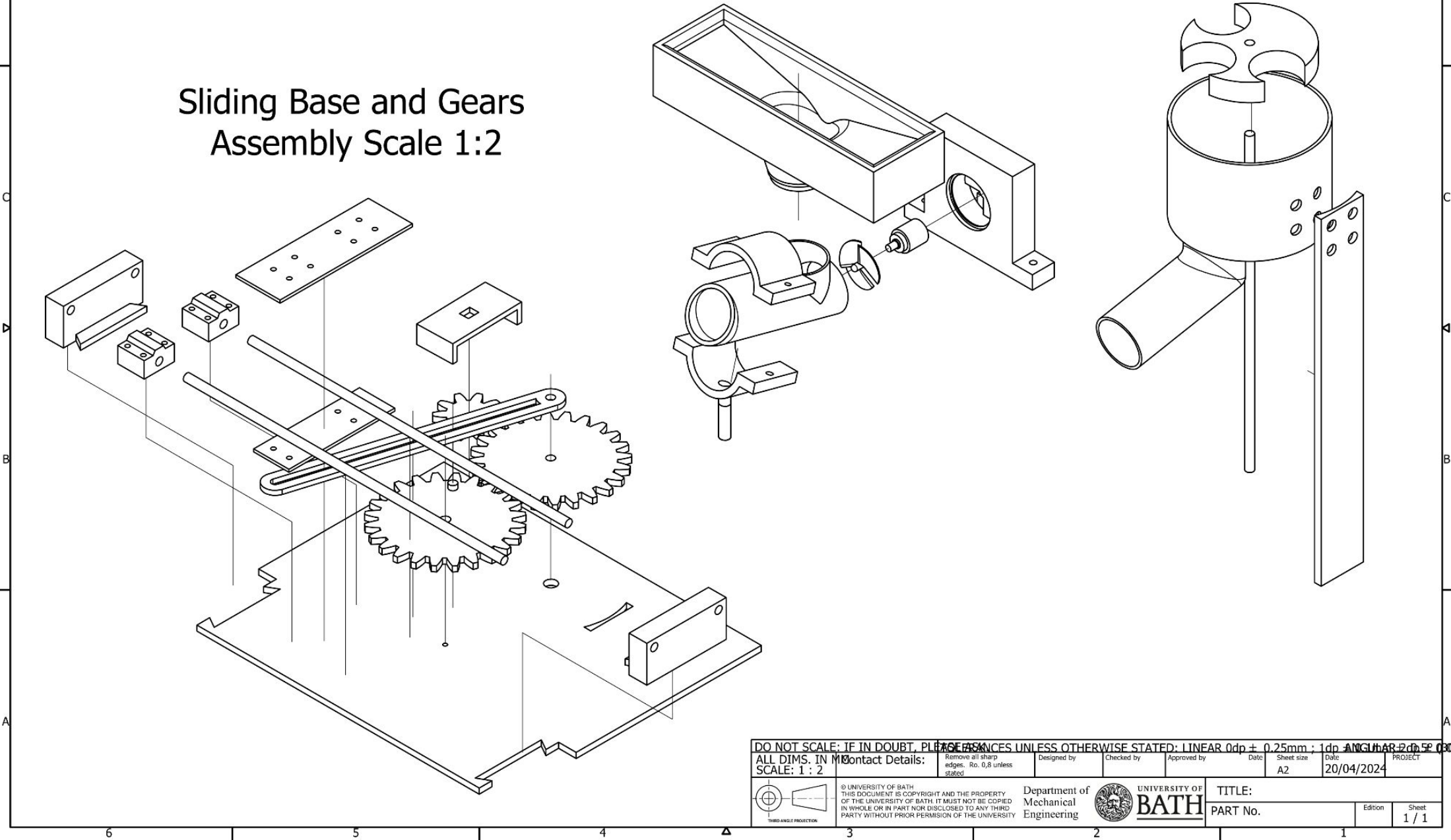


SUB ASSEMBLY LINE DRAWINGS

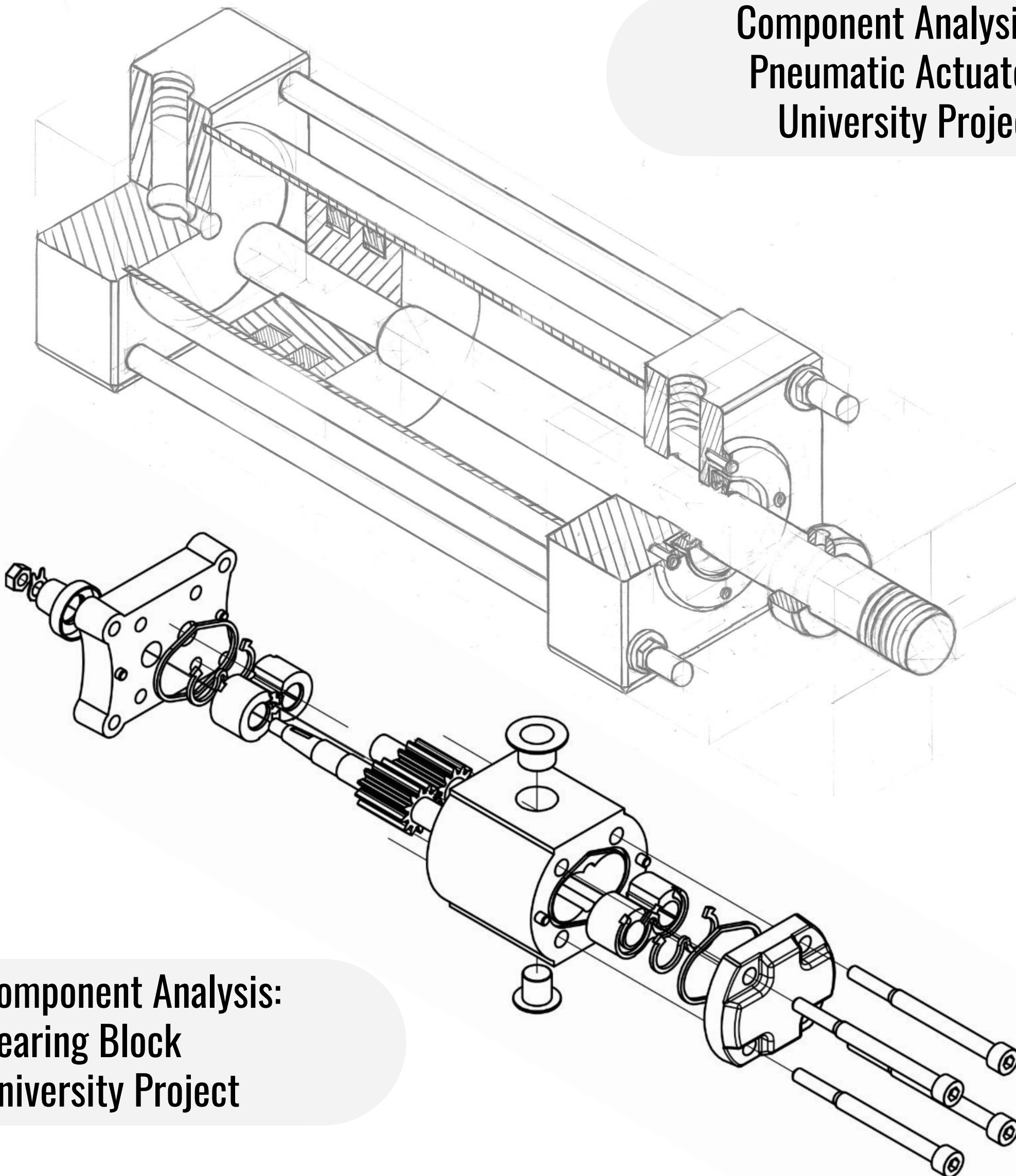
Fan and Trough Assembly Scale 1:2

Ball Basket Assembly Scale 1:2

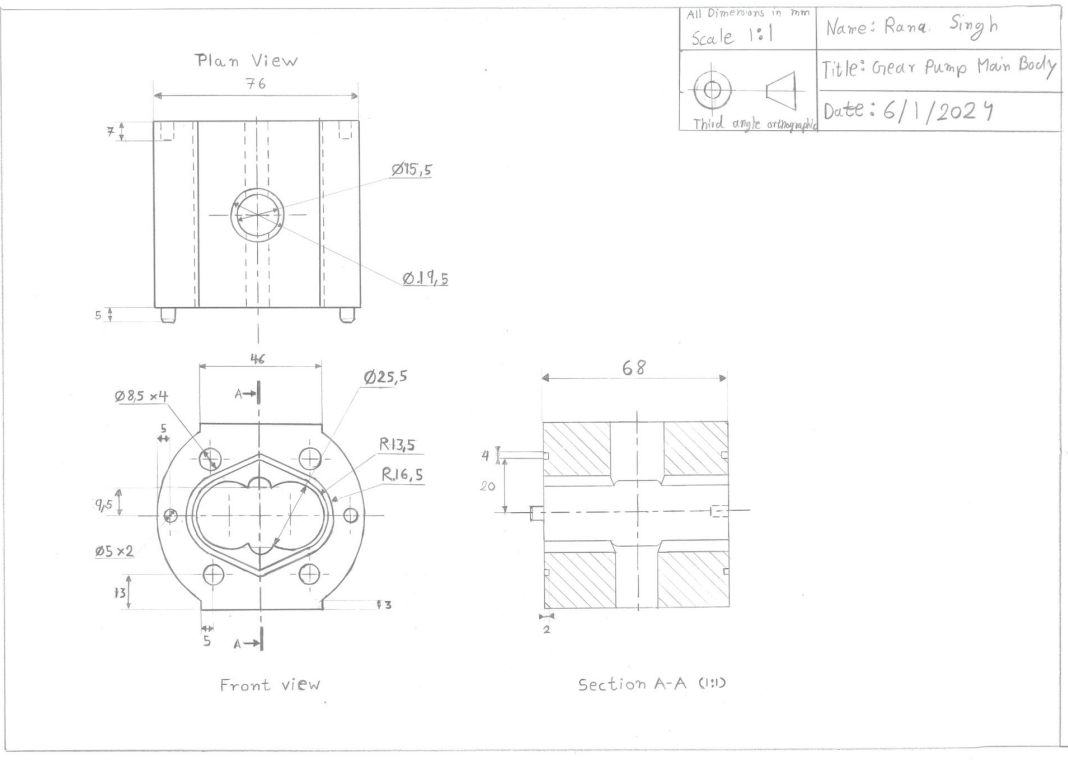
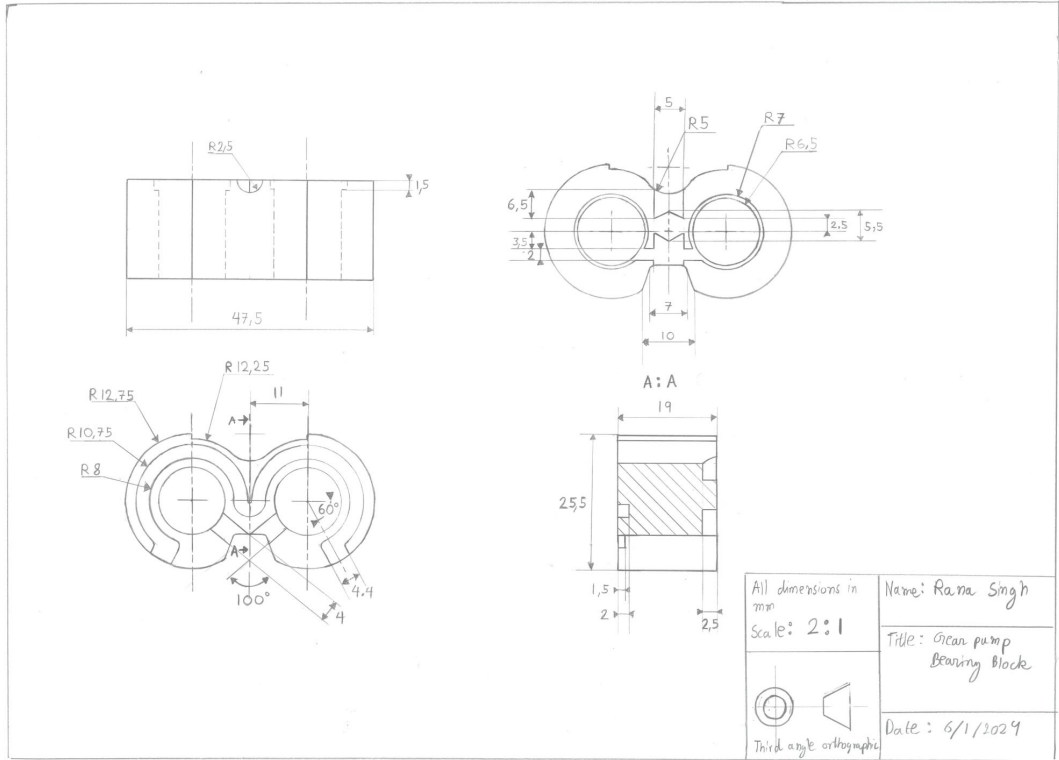
Sliding Base and Gears Assembly Scale 1:2



Component Analysis: Pneumatic Actuator University Project



Component Analysis: Bearing Block University Project



Geometric designs



Bespoke Guitar Stand A-Level Project

